

FIG. 2

21
EXAMPLE OF DEFINING THE TYPES OF DATA MADE OF A PLURALITY OF SUB-DATA ITEMS

CREATE TYPE ADDRESS_TYPE (
PUBLIC ZIP_CODE CHAR (8),
PUBLIC ADDRESS CHAR (20),
PUBLIC TELEPHONE_NO. CHAR (10),

201
SUB-DATA DEFINITION

PUBLIC FUNCTION (number int)
RETURNS
FUNCTION PROPER
RETURN address_data);

202
FUNCTION DEFINITION

22
TYPICAL DATA CREATED FROM TYPE
CREATE TABLE ADDRESS_RECORDS
(id INT, NAME CHAR(10), ADDRESS_DATA);

204
ADDRESS RECORD TABLE TYPICAL SUB-DATA ITEMS

ID	NAME	ADDRESS DATA
1	YAMADA	ZIP CODE : 114 ADDRESS : TOKYO TELEPHONE NO. : 03-3735-XXXX
2	SATO	ZIP CODE : 223 ADDRESS : YOKOHAMA TELEPHONE NO. : 045-564-XXXX
3	TANAKA	ZIP CODE : 830 ADDRESS : HAKATA TELEPHONE NO. : 0942-43-XXXX

203
TYPICAL DATA
COMPOSED OF
SUB-DATA ITEMS

23
EXAMPLE OF QUERY FOR RETRIEVING DATA MADE OF
A PLURALITY OF SUB-DATA ITEMS
SELECT ZIP_CODE (ADDRESS_DATA) FROM ADDRESS_RECORDS

SELECT ADDRESS_DATA FROM ADDRESS_RECORDS
WHERE ADDRESS (ADDRESS_DATA) = YOKOHAMA

205
TYPICAL RETRIEVAL
OF SUB-DATA ITEM

206
TYPICAL RETRIEVAL OF DATA

FIG. 3

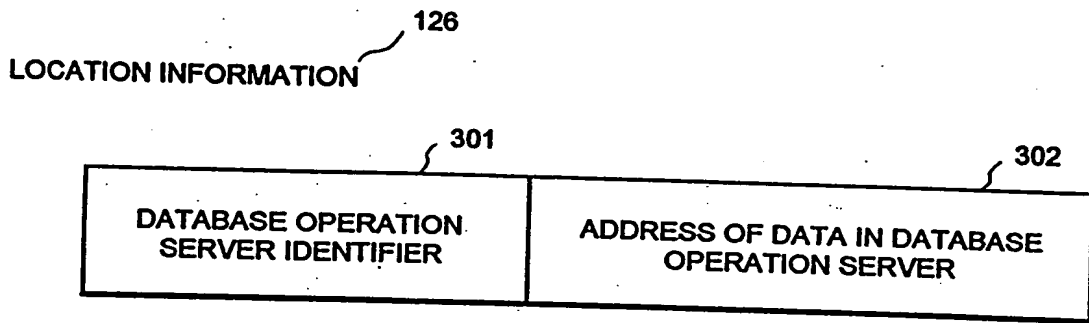


FIG. 4

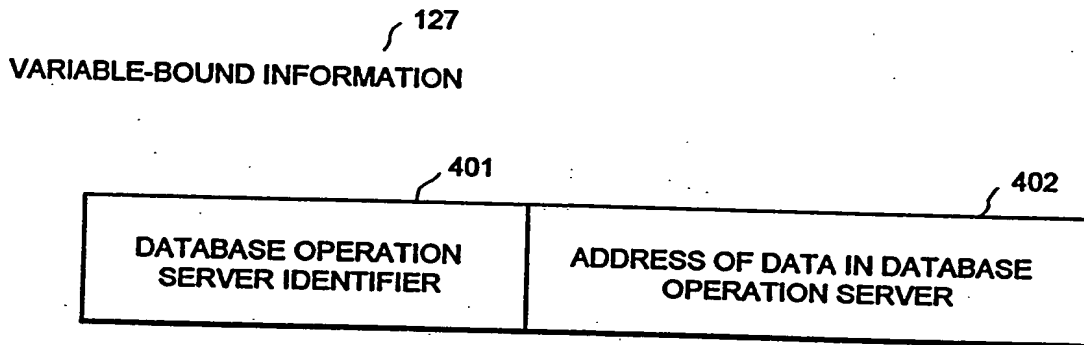


FIG. 5

51
INTERNAL-FORMAT PROCEDURE
FOR SUB-DATA RETRIEVAL

125a

CODE	INFORMATION
501 SUB-DATA RETRIEVAL CODE	502 LOCATION INFORMATION 507 SUB-DATA OFFSET INFORMATION SUB-DATA LOCATION OFFSET LIST OFFSET OF CODE TO BE EXECUTED NEXT

505a
LOCATION TO
ACCOMMODATE
SUB-DATA 1

505b
LOCATION TO
ACCOMMODATE
SUB-DATA 2

52
INTERNAL-FORMAT PROCEDURE
FOR SUB-DATA UTILIZATION

125b

CODE	INFORMATION
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503a CODE FOR USING SUB-DATA 1	504a INFORMATION NECESSARY FOR PROCESSING 506a OFFSET OF LOCATION FOR ACCOMMODATING SUB-DATA 1 OFFSET OF CODE TO BE EXECUTED NEXT
---	---
503b CODE FOR USING SUB-DATA 2	504b INFORMATION NECESSARY FOR PROCESSING 506b OFFSET OF LOCATION FOR ACCOMMODATING SUB-DATA 2 OFFSET OF CODE TO BE EXECUTED NEXT
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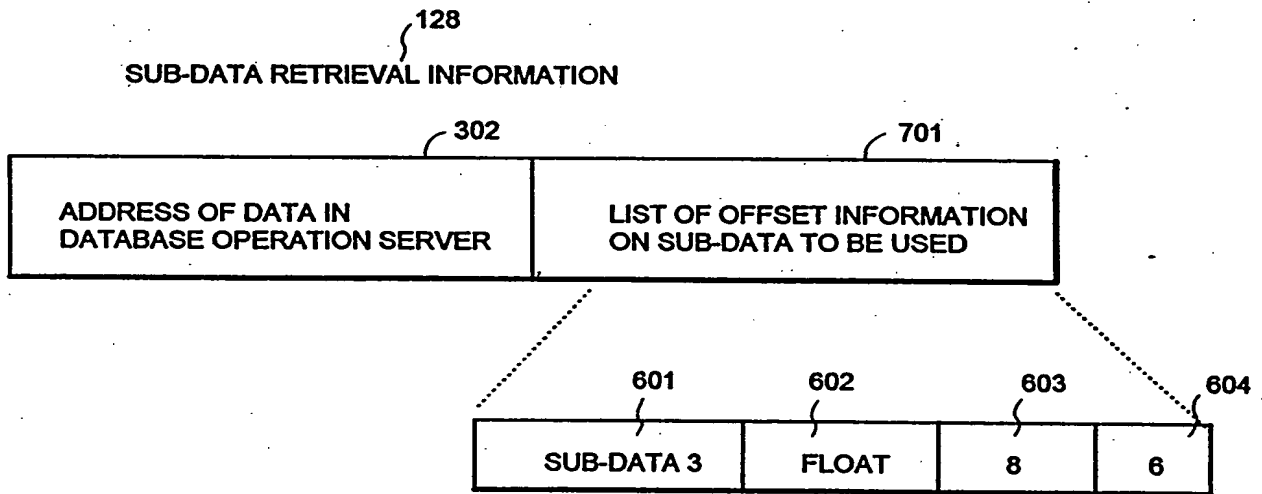
FIG. 6

124

SUB-DATA OFFSET INFORMATION

601 IDENTIFIER	602 DATA TYPE	603 DATA LENGTH	604 OFFSET
SUB-DATA 1	INT	4	0
SUB-DATA 2	CHAR	2	4
SUB-DATA 3	FLOAT	8	6

FIG. 7



WHEN SUB-DATA 3 IS DESIRED TO BE RETRIEVED

FIG. 8

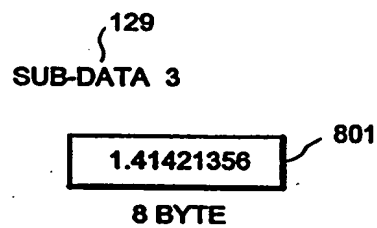


FIG. 9a

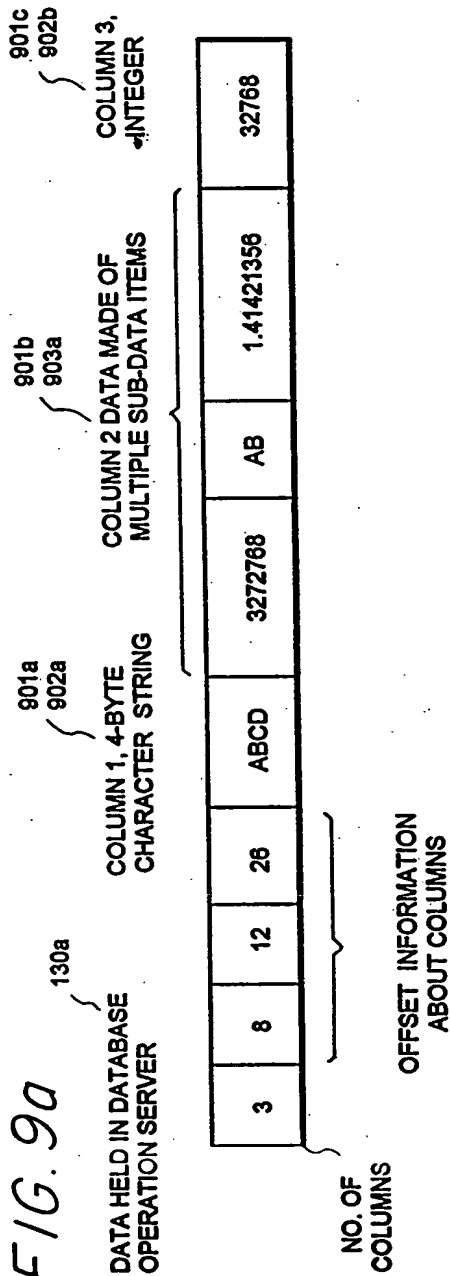


FIG. 9b

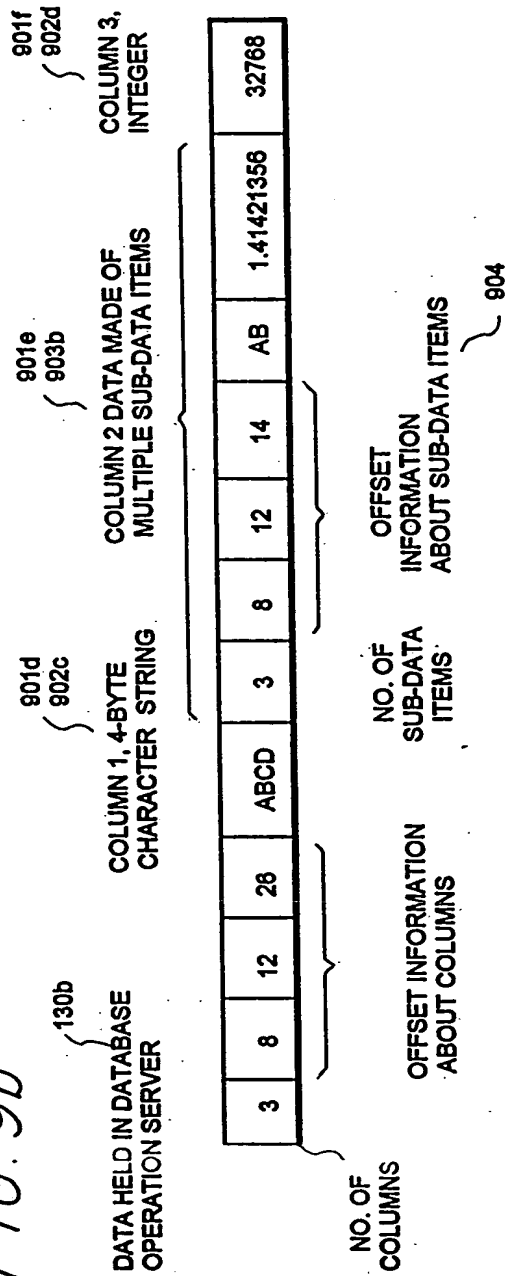


FIG. 10

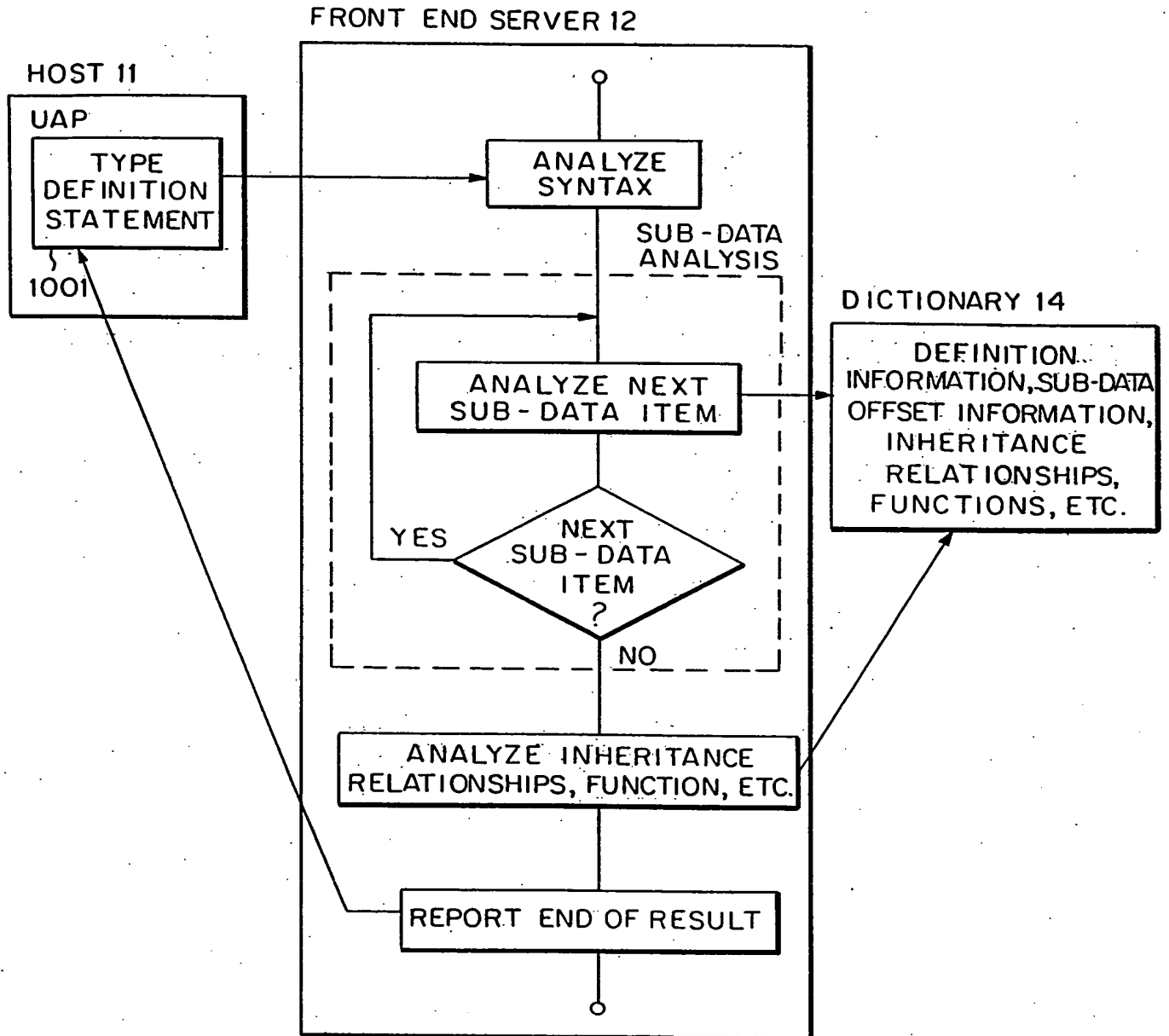
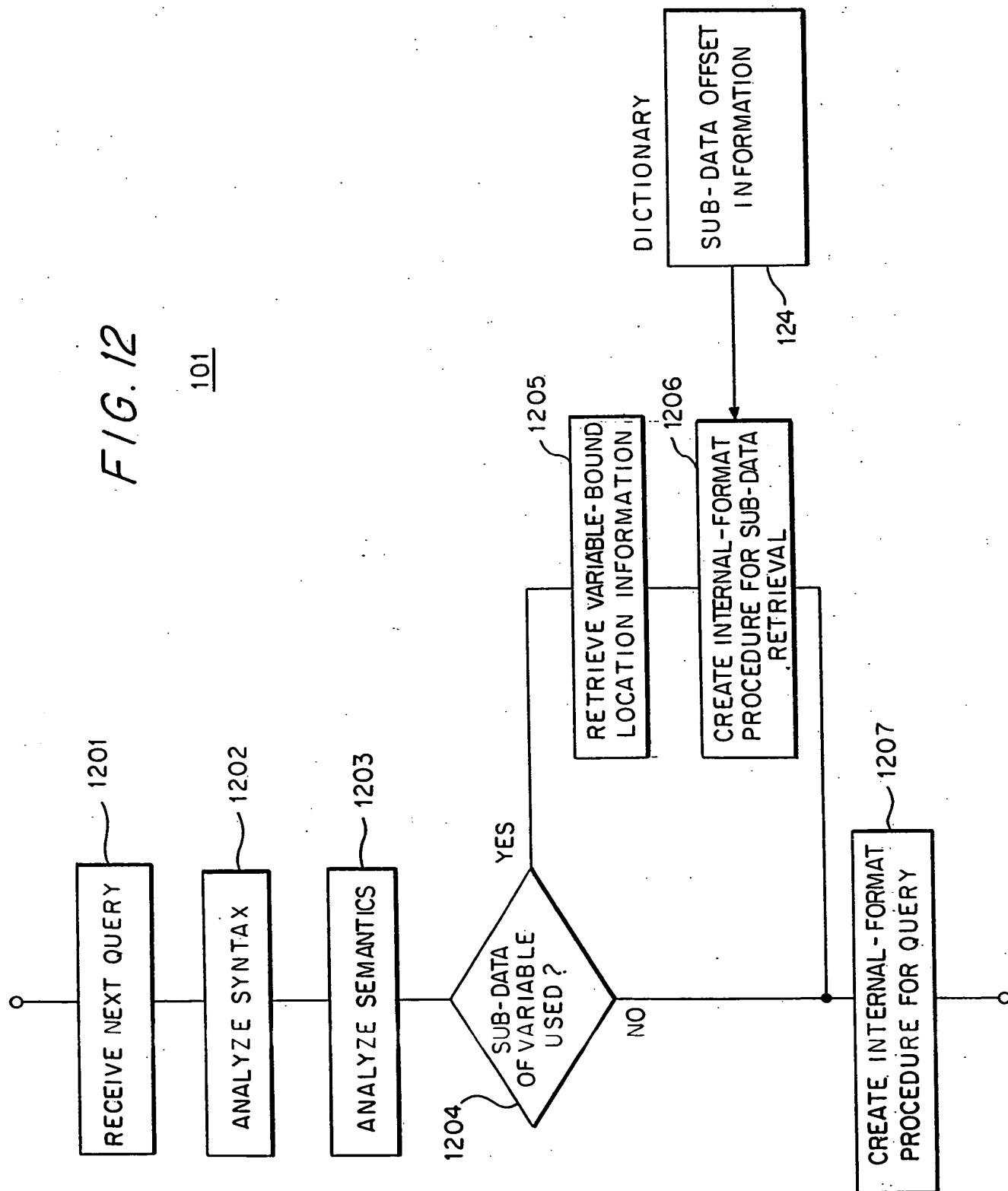


FIG. 12

101



FRONT END SERVER SIDE 102

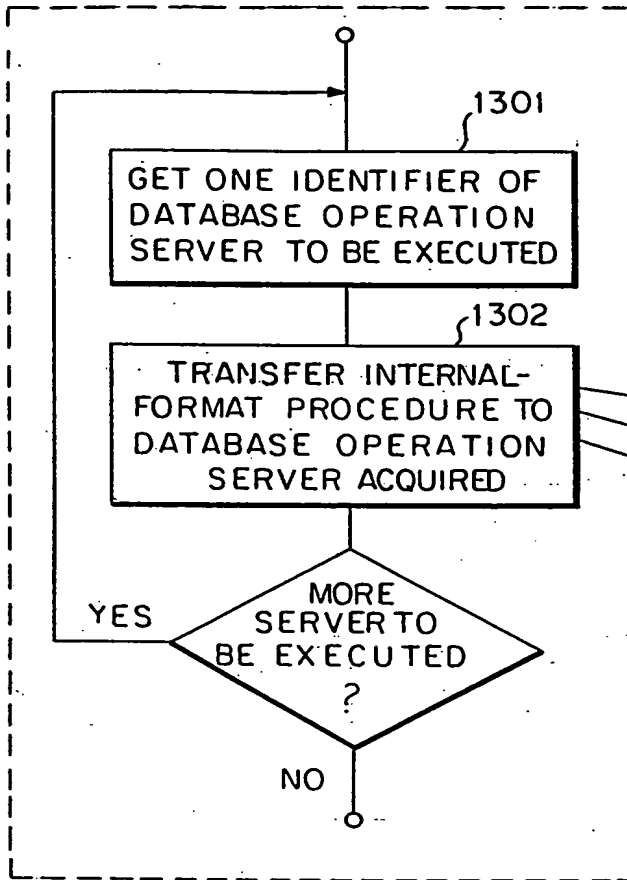


FIG. 13

DATABASE OPERATION SERVER SIDE 111

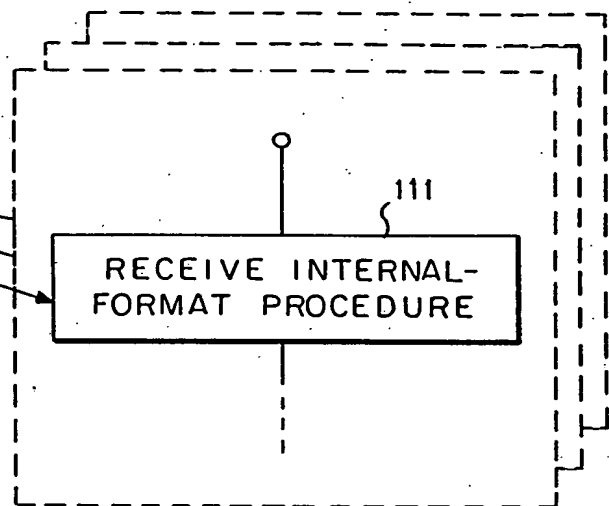


FIG. 14

104

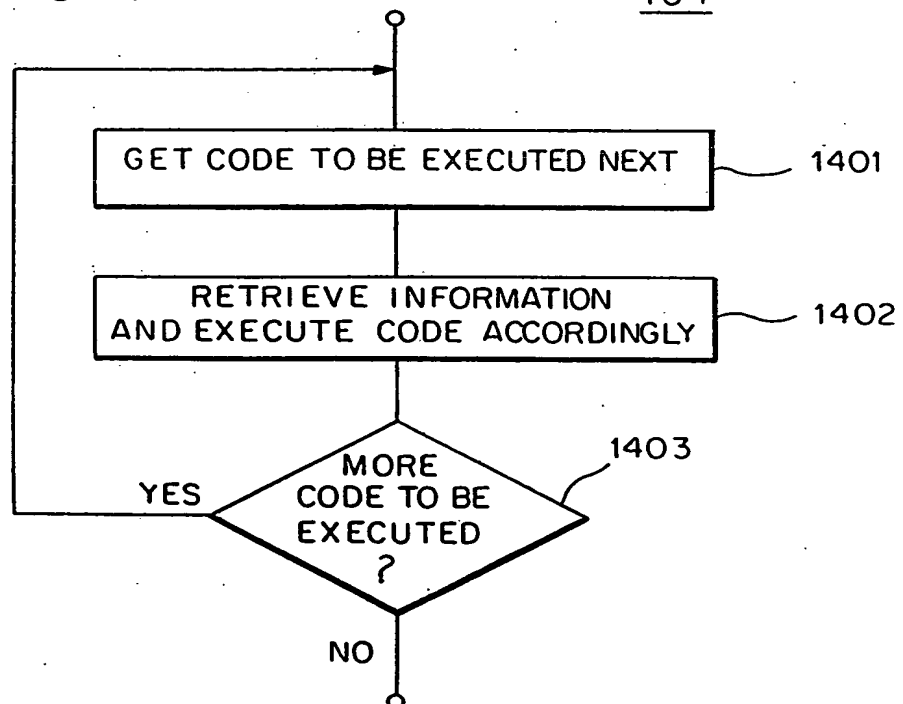


FIG. 15

112

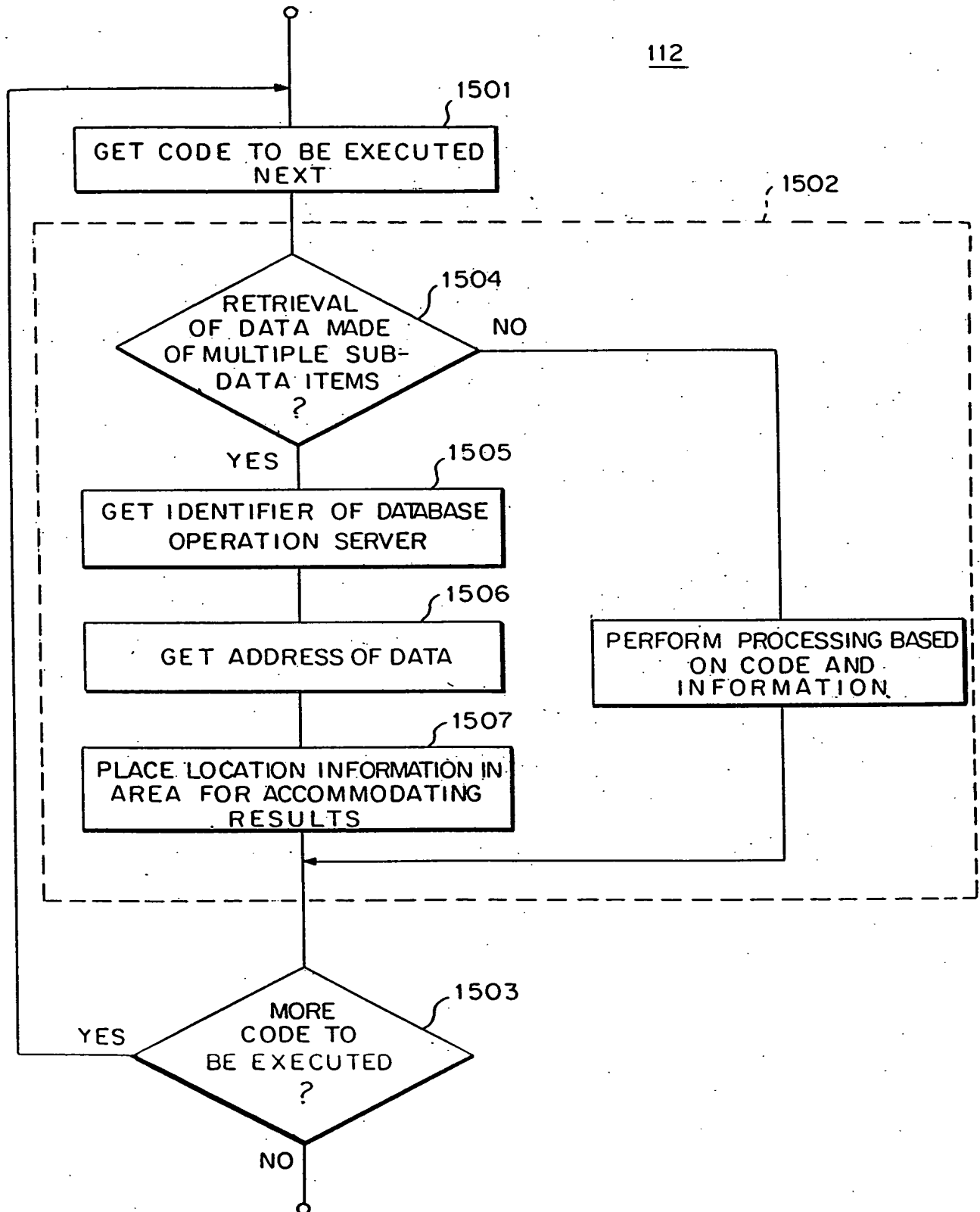


FIG. 16

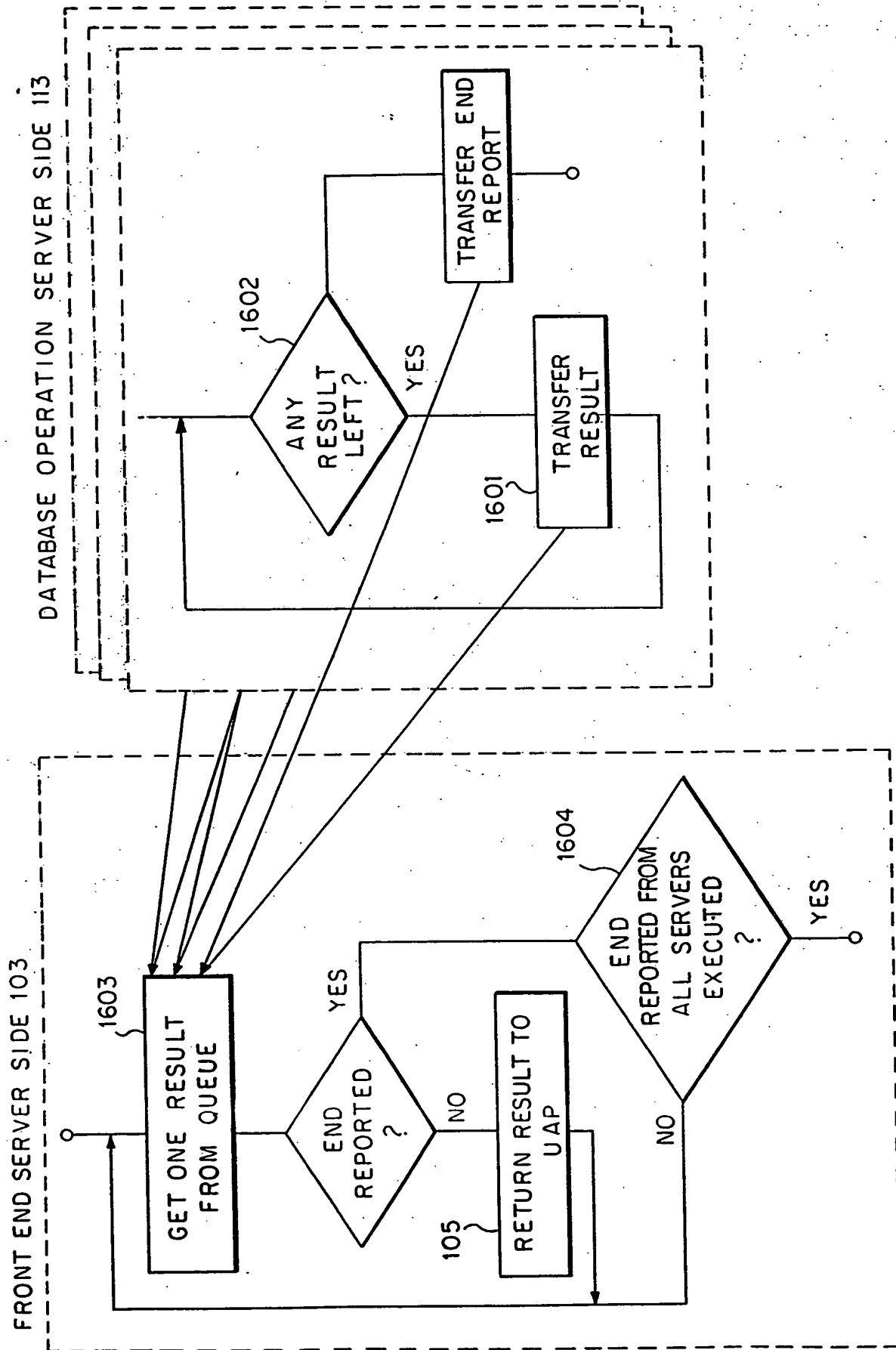


FIG. 17

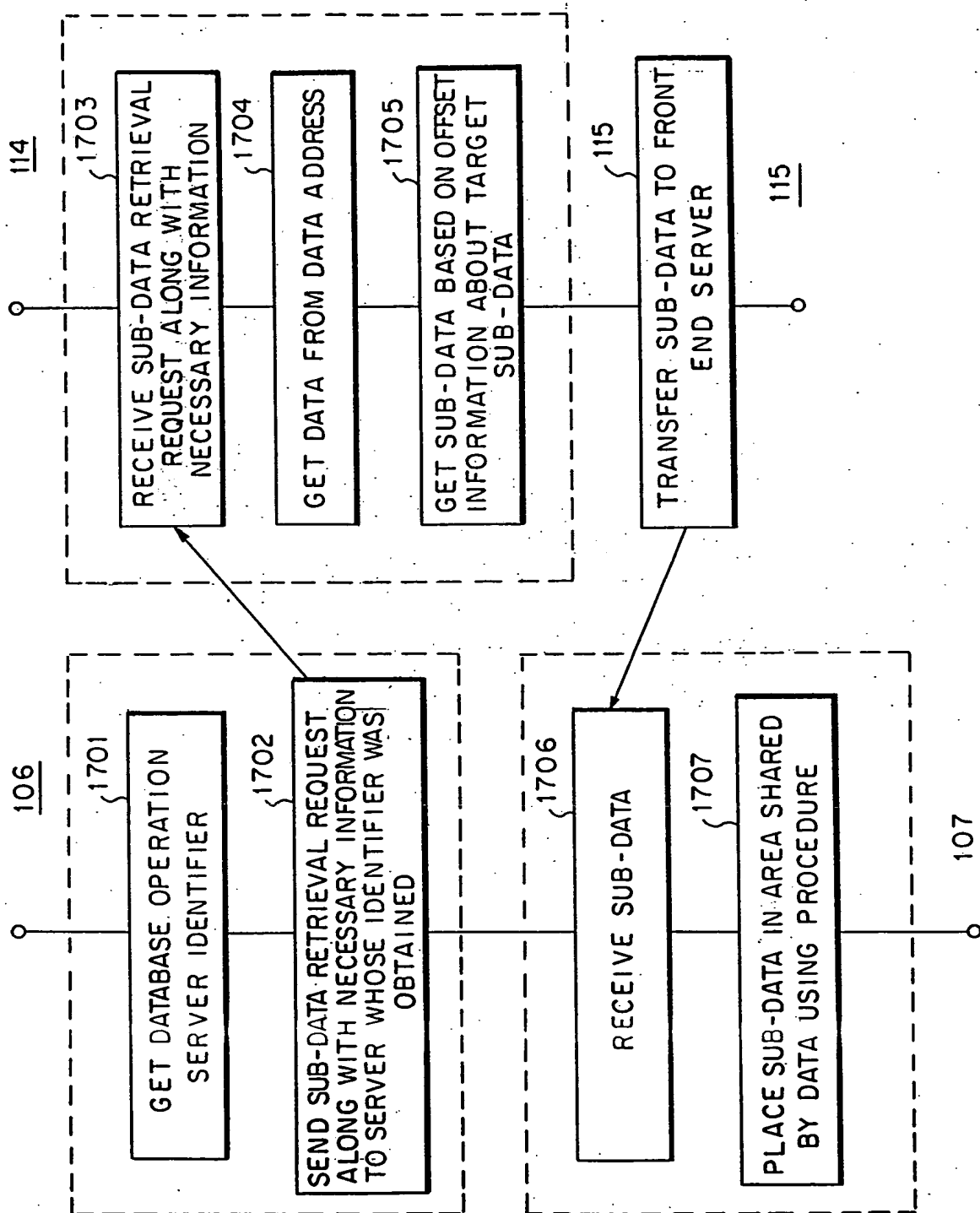


FIG. 18

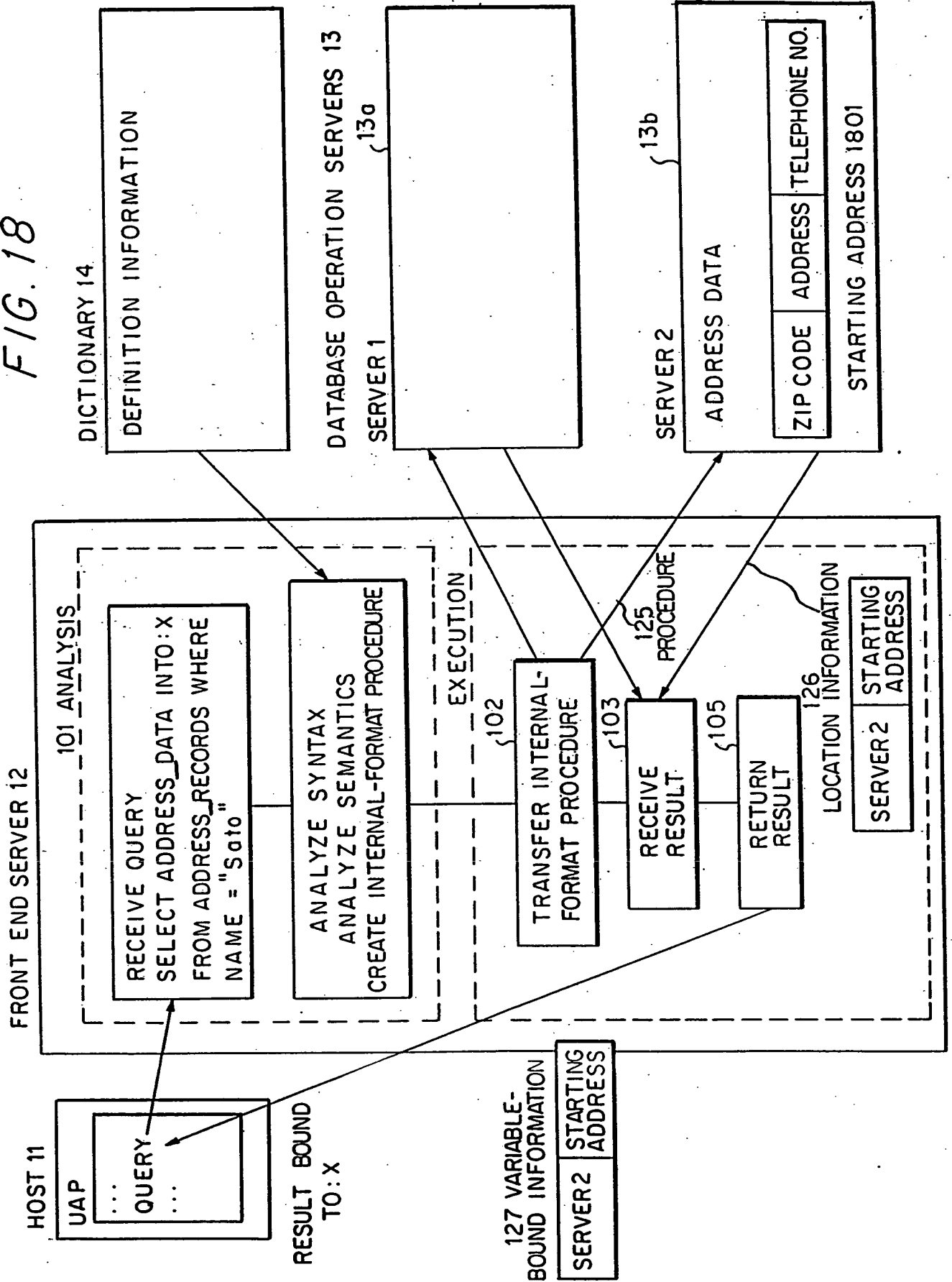


FIG. 19

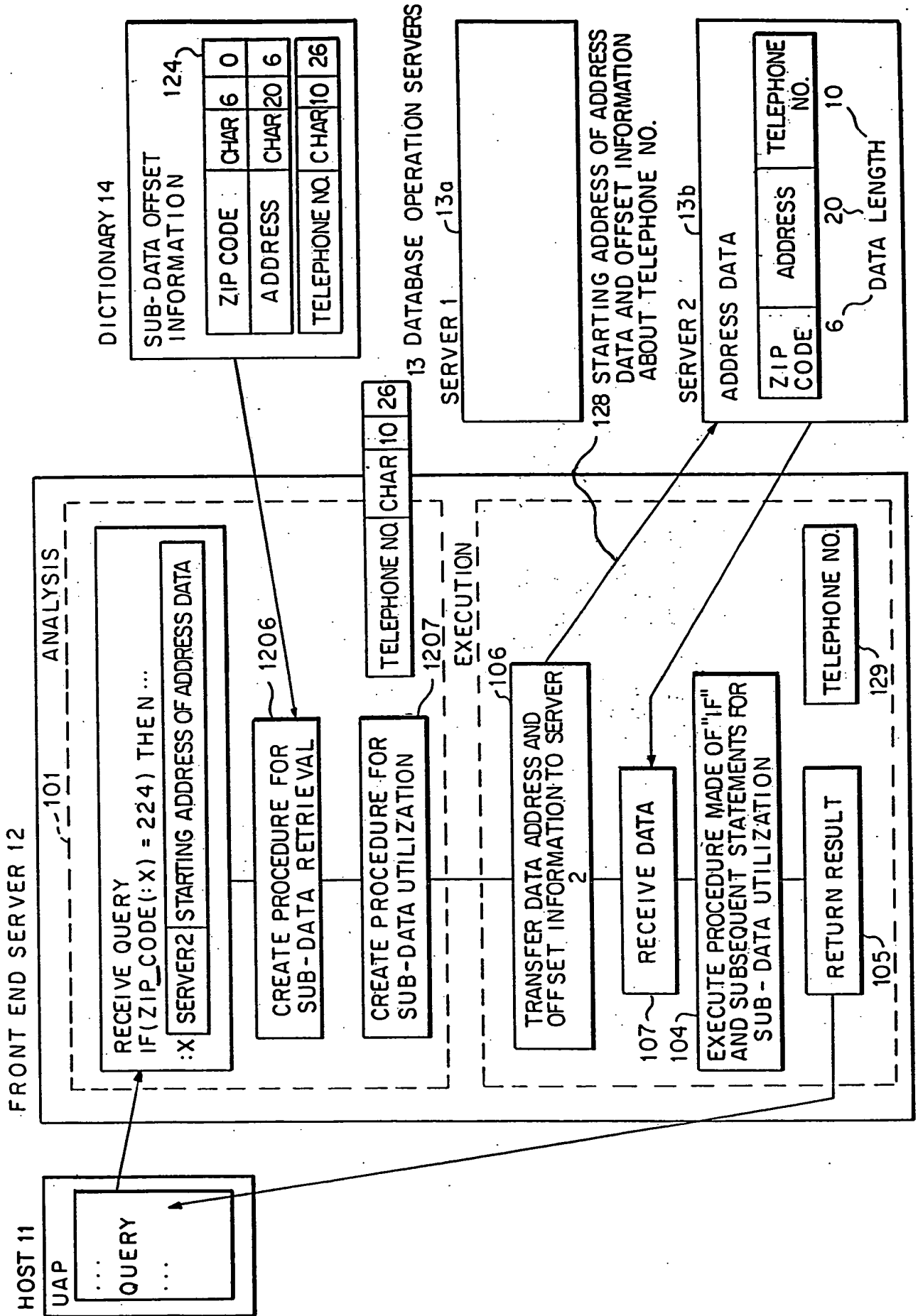


FIG. 20

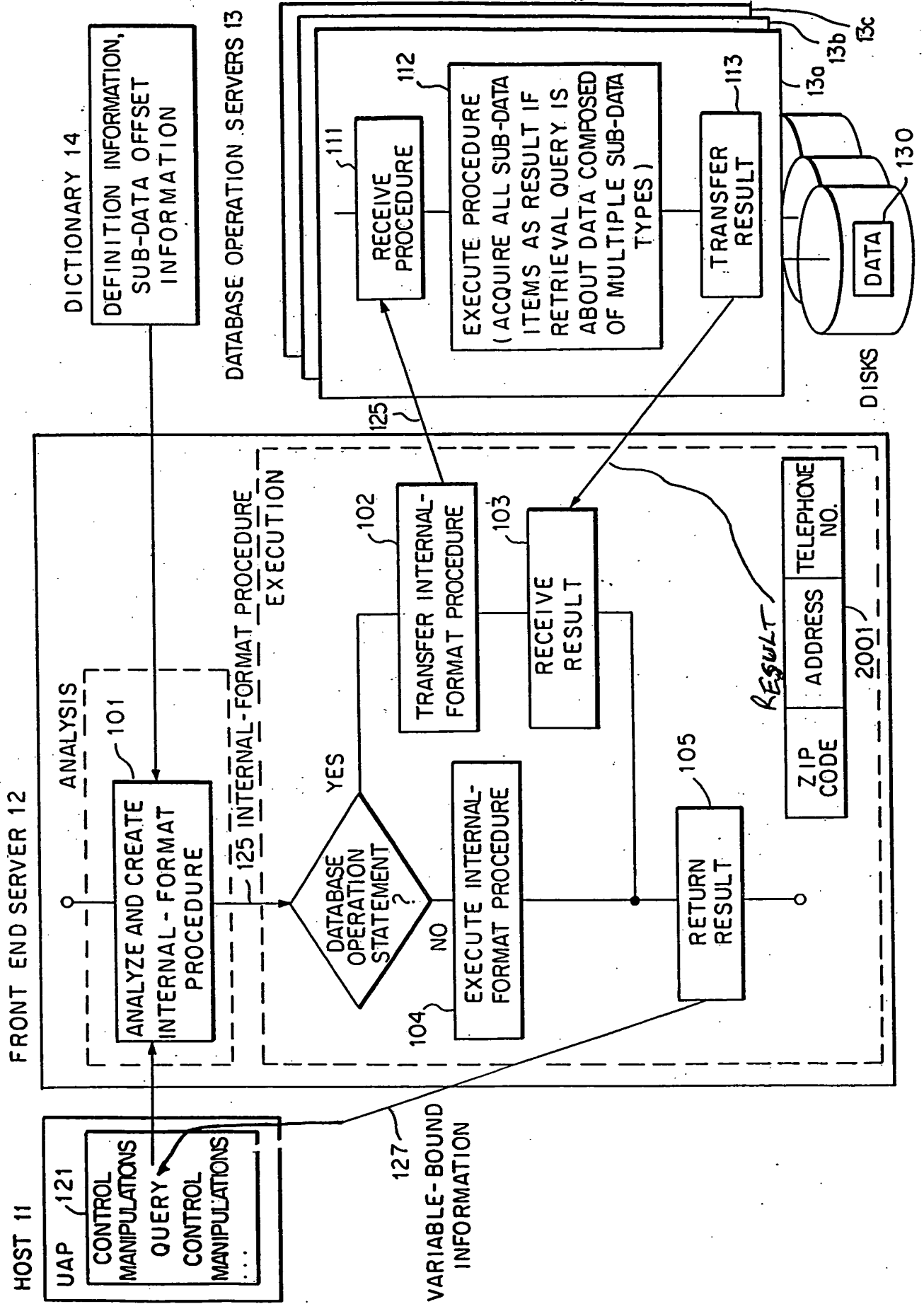
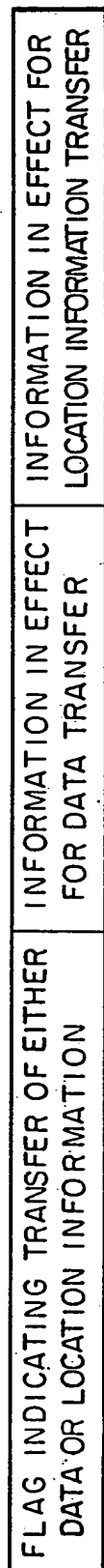


FIG. 21

VARIABLE-BOUND INFORMATION 127



2101 2102 2103

FIG. 23

